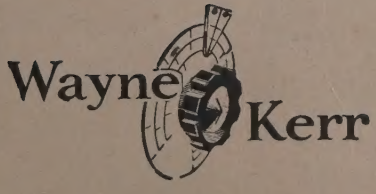
TO OFFICE

Amplifier Detector

TYPE M.183

OPERATING INSTRUCTIONS



THE WAYNE KERR LABORATORIES LTD., NEW MALDEN, SURREY Tel.: MALDEN 2202

MP MASTER
MA24515

AMPLIFIER DETECTOR TYPE M.183.

The Amplifier Detector provides facilities for the measurement of levels from +40 to - 60dbs. using a Standard reference level (1mW into 600 ohms) for frequencies in the range 100 cps to 10 Kc/s. It has a balance input impedance of 600 ohms. This instrument is used in conjunction with the Wayne Kerr Audio Frequency Oscillator Type O.141.

The attenuator range control is as follows, +20db to - 50db by means of the calibrated stepped attenuator in steps of 5 db while the meter scale is calibrated from +3db to - 10db. A fixed attenuator of -20db is provided as an alternative measuring point by means of a jack in the front panel. The instrument consists of a two stage amplifier with the meter in the anode circuit of V2 which also forms part of feedback loop to stabilise the gain. The stability of the amplifier is better than 1% and the measuring accuracy is within 0.1db. The frequency response of the amplifier is within the limits ±0.25db over the frequency range.

Setting up Procedure

To set the instrument turn the stepped attenuator to 0db and feed in a signal zero level (1mW) and adjust VR1 for 0db reading on Meter M1. A 600 ohm line can now be connected and the output read from the stepped attenuator and meter reading.

Voltage Measurements

HT Rail ..	240V	approximately
V2 Anode ..	140V	"
V2 Cathode ..	1.5V	"
V3 Anode ..	50V	"
V3 Screen ..	65V	"
V3 Cathode ..	1.5V	"

Mains Consumption = 20 watts approximately.

Weight = 12 lbs.
Size (approximately) 19" x 7" x 10" for Standard rack mounting.

Amplifier-Detector M183 - Portable type with carrying case - 10F/CA194

Amplifier-Detector M183 - Rack mounted type complete with dust cover - 10F/CA195

No. Off	Description	Drawing No.	Manufacturer or Supplier	Type No.	Remarks, Finish etc.	Item	Stores Ref.No.
1	Mains Transformer Primary:- 10-0-200-220-240v 50 Secondary:- 210v 30mA 6.3v Centre Tapped 1.75A	T1	Partridge Ref: 9484A	VDN	Electrostatic Screen to be brought out to a separate tag.	1	(10K/CA777)
1	Input Transformer	T2	Partridge Ref: 9484B	VDN	C/W Mumetal Screening Box	2	(10K/CA778)
3	Turret Lug		Belling Lee	L592		3	(10A/CA515)
1	Valve Holder B7G		McMurdo	XM7UH	C/W Long Screening Can and Spring	4	Z.561152
1	Moving Coil Meter 1mA F.S.D.	M1	Baldwin		STD $2\frac{1}{2}$" Flush Mtg.	5	5Q/CA157
1	Instrument Rectifier 5mA	W1	Westinghouse		Bridge Type	6	
2	Fuse Holder		Belling Lee	L356		7	10H/376
1	Fuse Cartridge 1A	FZ2	Belling Lee	L1055/1		8	10H/9613
1	Toggle Switch 2 Pole ON/OFF	S1	Bulgin	S277		9	10F/2669
1	Pilot Lamp Holder		Bulgin	D9		10	10A/12811
1	Pilot Lamp 6.3v .3A M E S	PL1	Osram			11	5LX951201
2	Telephone Jack	J1 & J2	Pheonix	B6N	Cat. No. 20152. P.O. 500B6	12	10G/13273
1	Rotary Switch 1 Pole 15 way	S2	N.S.F.	G		13	10F/CA916
1	Potentiometer Wire Wound 50	VR1	Colvern	CLR3001		14	10W/CA1317
2	Valve Holder B7G		McMurdo	BM7UB	C/W Screening Can and Spring	15	Z.560127
2	Condenser Electrolytic 200/uFd 6 volt	C4 & C5	B.E.C.	CE400/5		16	10C/CA1399
1	Condenser Electrolytic 16-16 /uFd 350 volt	C1 & C2	B.E.C.	CE816		17	10C/CA1400
1	Condenser Electrolytic 8/uFd 350 volt	C8	B.E.C.	CE801		18	10C/CA1401
1	Condenser Paper 1/uFd 350v	C3	T.C.C.	621M		19	10C/CA1402
1	Condenser Paper .05/uFd 500v	C7	T.C.C.	CP37S	May not be required after Calb'n.	20	10C/Z115055
2	Condenser Paper 0.1/uFd 350v	C6 & C9	T.C.C.	CP37N		21	10C/Z115096

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Amplifier-Detector M183 - Rack mounted type complete with dust cover - 10F/CA195

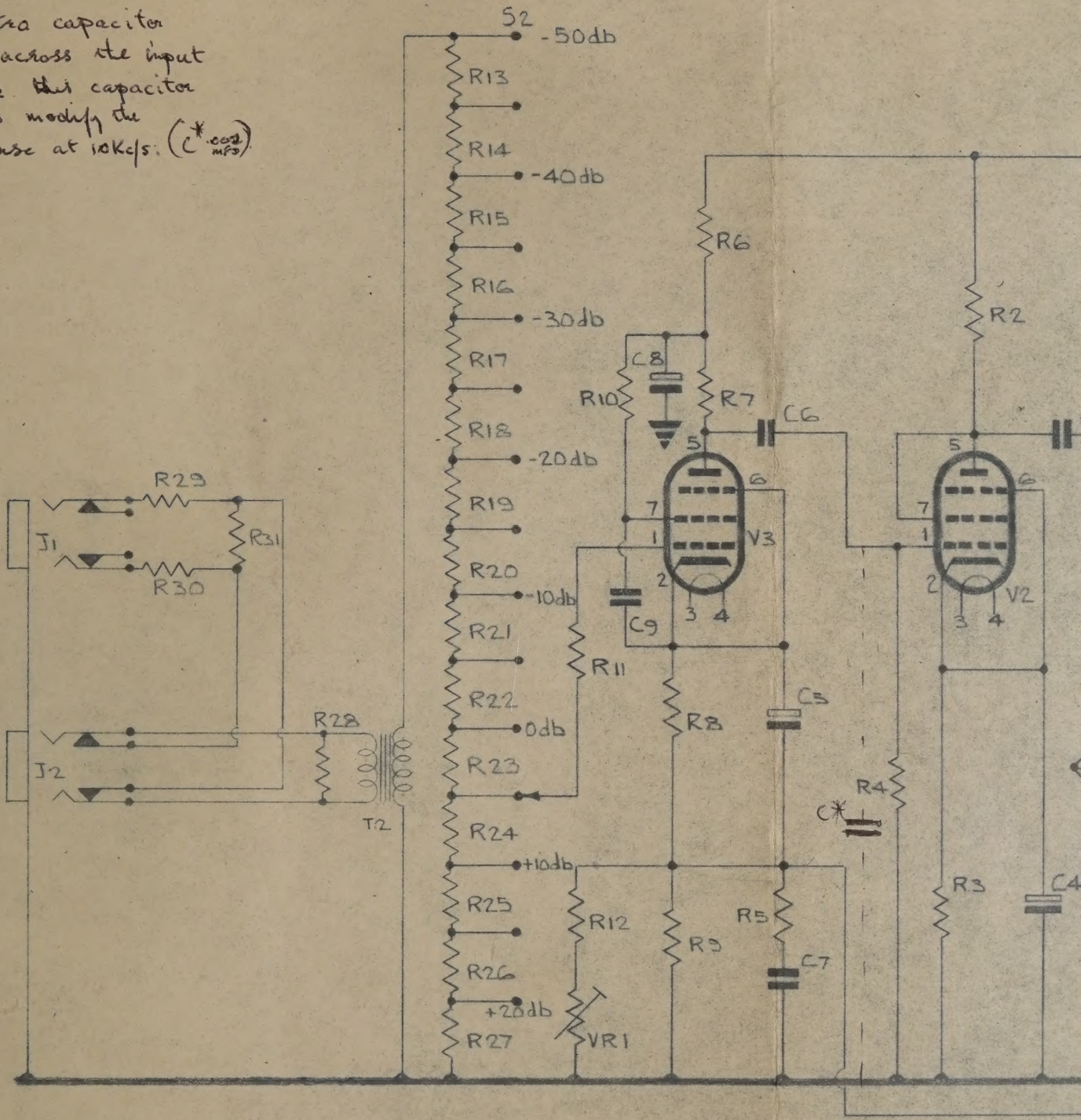
No. Off	Description	Drawing No.	Manufacturer or Supplier	Type No.	Remarks, Finish etc.	Item	Stores Ref.No.
1	Resistor Carbon 100K ¼w 20%	R5	Erie	RMA9		22	Z.223038
1	" " 2.2K ¼w 5%	R8	"	"		23	Z.222047
1	" " 33 ¼w 20%	R12	"	"		24	Z.221047
1	" " 220K ½w 20%	R7	"	"		25	Z.223080
1	" " 470K ¼w 20%	R10	"	"		26	Z.223122
1	" " 1M ½w 20%	R4	"	"		27	Z.223164
1	" " 82 ½w 10%	R9	Erie	RMA8		28	Z.221102
1	" " 33K ½w 20%	R6	"	"		29	Z.222195
1	" " 15K 1w 20%	R2	Erie	RMA2		30	Z.212148
1	" " 10K 1w 20%	R1	"	"		31	Z.212127
1	" " 470 ¼ 20%	R3	"	RMA9		32	Z.221194
1	" " 22K ¼ 20%	R11	"	"		33	Z.222173
1	3 Pole Mains Plug	P1	Bulgin	P75		34	10H/CA732
2	Resistor Wire Wound 270 6w 2%	R29 & R30	Welwyn	AW3111		35	Z.243137
1	Resistor Wire Wound 66.7 6w 2%	R31	Welwyn	AW3111		36	Z.243081
1	Resistor Carbon 24.61 1%	R26	"	A3622	¼w Hi. Stab	37	10W/CA1302
1	" " 31.63 1%	R27	"	"	" "	38	CA1303
1	" " 43.76 1%	R25	"	"	" "	39	CA1304
1	" " 77.80 1%	R24	"	SA3622	" "	40	CA1305
1	" " 138.50 1%	R23	"	A3622	" "	41	CA1306
1	" " 246.10 1%	R22	"	"	" "	42	CA1307
1	" " 437.60 1%	R21	"	"	" "	43	CA1308
1	" " 778.0 1%	R20	"	"	" "	44	CA1309
1	" " 1.385K 1%	R19	"	SA3622	" "	45	CA1310
1	" " 2.461K 1%	R18	"	A3622	" "	46	CA1311
1	" " 4.376K 1%	R17	"	"	" "	47	CA1312
1	" " 7.780K 1%	R16	"	"	" "	48	CA1313
1	" " 13.850K 1%	R15	"	"	" "	49	CA1314
1	" " 24.610K 1%	R14	"	"	" "	50	CA1315
1	" " 43.760K 1%	R13	"	"	" "	51	CA1316

Amplifier-Detector M183 - Portable type with carrying case - 10F/CA194

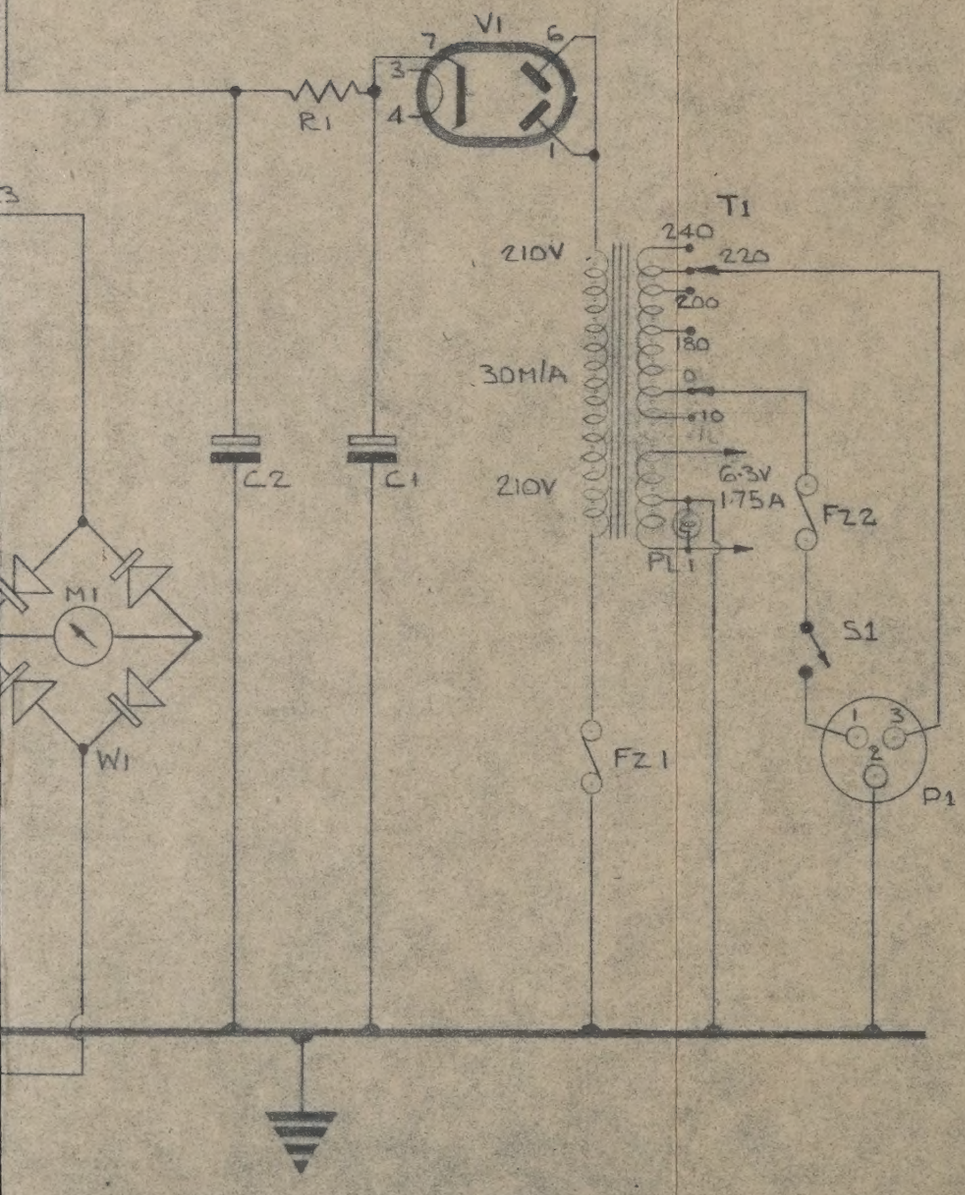
Amplifier-Detector M183 - Rack mounted type complete with dust cover - 10F/CA195

No. Off	Description	Drawing No.	Manufacturer or Supplier	Type No.	Remarks, Finish etc.	Item	Stores Ref.No.
1	Fuse Cartridge 100mA	FZ1	Belling Lee	L1055/110		52	10H/10152
1	Valve 6 x 4	V1				53	10CV/493
	" EF91	V2 and V3				54	10CV/138
1	Front Panel	1779	Wayne Kerr		Engrave to 1733	55	10A/CA1680
1	End Frame RH	1734/2	" "			56	10A/CA1681
1	End Frame LH	1734/1	" "			57	10A/CA1682
1	Chassis	1778	" "			58	10A/CA1683
1	Tag Board Assy. P/L	CWP1776	" "			59	10A/CA1684
1	Meter Tag Board Assy. P/L	CWP1777	" "			60	10A/CA1685
3	Wiring Post	WP523	" "			61	10A/CA1686
2	Protection Bar	1486/6	" "			62	10A/CA1687
4	Seating Washer	WP622	" "			63	10A/CA1688
2	Spacer	WP1040	" "		Used on Tag Board	64	10A/CA1689
1	Cover Plate	WP1767	" "			65	10A/CA1690
2	Case Brkt. LH	WP935	" "			66	10A/CA1691
1	Screening Box.	WP1781			Used on Switch	67	10A/CA1701
1	Wayne Kerr Knob Small	CS567	" "			68	10A/CA1692
1	Wayne Kerr Knob Small Modified	WP022	" "			69	10A/CA1693
1	Pointer	WP027	" "			70	10A/CA1694
2	Case Brkt. RH	WP936	" "	SK814	Transit Case 1738	71	10A/CA1696
2	Hinge	WP934	" "			72	10A/CA1697
2	Handle	WP836	" "		Chrome Plate and Polish	73	10A/CA1698
2	Fastener		Parker	968	" " " "	74	10A/CA1699
2	Spacers	WP1780				75	10A/CA1700
1	Switch Tag Board	WP2008				76	10A/CA1702
3	Spacer	WP2009			Used on Switch Assembly	77	10A/CA1703
3	Washer	WP2010				78	10A/CA1704

NOTE.
IN SOME MODELS.
R28 is omitted.
R9 " "
C7 is not connected,
and a extra capacitor
is fitted across the input
Grid of V_2 this capacitor
is fitted to modify the
freq. response at 10Kc/s. (C* .002 MFD)



CIRCUIT DIAGRAM F



OR AMPLIFIER DETECTOR

COMPONENT LIST	
R1	RESISTOR 10KΩ 1W
R2	RESISTOR 15KΩ 1W
R3	RESISTOR 470Ω 1/4W
R4	RESISTOR 1MΩ 1/4W
R5	RESISTOR 100Ω 1/4W
R6	RESISTOR 33KΩ 1/2W
R7	RESISTOR 220KΩ 1/4W
R8	RESISTOR 2KΩ 1/2W
R9	RESISTOR ·82Ω 1/2W
R10	RESISTOR 470KΩ 1/4W
R11	RESISTOR 22KΩ 1/4W
R12	RESISTOR 33Ω 1/4W
R13	RESISTOR 43·76K HI-STAB
R14	RESISTOR 24·61K "
R15	RESISTOR 13·85K "
R16	RESISTOR 7·78K "
R17	RESISTOR 4·376K "
R18	RESISTOR 2·461K "
R19	RESISTOR 1·385K "
R20	RESISTOR 778Ω "
R21	RESISTOR 437·6Ω "
R22	RESISTOR 246·1Ω "
R23	RESISTOR 138·5Ω "
R24	RESISTOR 77·8Ω "
R25	RESISTOR 43·76Ω "
R26	RESISTOR 24·6Ω "
R27	RESISTOR 31·6Ω "
R28	RESISTOR A.I.C.
R29	RESISTOR 270Ω 1% 6W
R30	RESISTOR 270Ω " "
R31	RESISTOR 66·7Ω " "
VR1	POTENTIOMETOR 50Ω
C1	CAPACITOR ELECROLYTIC 16μF
C2	CAPACITOR " 16μF
C3	CAPACITOR 1μF
C4	CAPACITOR ELECTROLYTIC 200μF
C5	CAPACITOR " 200μF
C6	CAPACITOR ·1μF
C7	CAPACITOR ·05μF A.I.C.
C8	CAPACITOR ELECTROLYTIC 8μF
C9	CAPACITOR ·1μF
V1	VALVE CV 493
V2	VALVE CV 138
V3	VALVE CV 138
FZ1	HT FUSE 100M/A.
FZ2	MAINS FUSE 1AMP
J1	INPUT JACK
J2	INPUT JACK
M1	0-1M/A F.S.D
P1	MAINS INPUT PLUG
PL1	PILOT LAMP 6·3V ·15A
S1	MAINS ON/OFF
S2	ATTENUATOR SWITCH
T1	MAINS TRANSFORMER
T2	OUTPUT TRANSFORMER
W1	INSTRUMENT RECTIFIER

MP MASTER
MA24515